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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/719,000

11/21/2003

William A. Goddard III

1950-0022

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08/17/2007

MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C

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EXAMINER

MCCRACKEN, DANIEL

ART UNIT

PAPER NUMBER

1754

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/719,000	Applicant(s) GODDARD ET AL.	
	Examiner Daniel C. McCracken	Art Unit 1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Citation to the Specification will be in the following format (S. # : ¶) where # denotes the page number and ¶ denotes the paragraph number. Citation to patent literature will be in the form (Inventor # : LL) where # is the column number and LL is the line number. Citation to the pre-grant publication literature will be in the following format (Inventor # : ¶) where # denotes the page number and ¶ denotes the paragraph number.

Information Disclosure Statement

Applicants have stated “[m]any of the references cited in the specification were cited in an Information Disclosure Statement (IDS) submitted by applicants on 14 January 2005. Several others are cited in the Supplemental IDS submitted herewith.” (Remarks of 5/29/2007 at 11). **NO SUCH IDS HAS BEEN RECEIVED.** Further, Applicants transmittal form filed 5/29/2007 indicates that no such enclosure was provided.

The Examiner reminds applicants, “[t]he public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability.” 37 C.F.R. §1.56.

The Examiner hereby requests any and all information material to patentability be submitted on an appropriate IDS (Form PTO-1449).

Claim Rejections - 35 USC §§ 102-103, 112, Objections

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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The references cited teach each and every limitation of the rejected claims. The pinpoint citations provided are in no way to be construed as limitations of the teachings of the reference, but rather illustrative of particular instances where the teachings may be found.

Claims 1-36 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Applicants admissions.

At the outset, the Examiner notes that "a statement by an applicant during prosecution identifying certain matter not the work of the inventor as "prior art" is an admission that the matter is prior art." *Riverwood Int'l Corp. v. R.A. Jones & Co.*, 324 F.3d 1346, 1354, 66 USPQ2d 1331, 1337 (Fed. Cir. 2003) (citations omitted). Applicants have stated on the record:

*The methods and compositions of the instant application rely on synthetic procedures that are well known in the art, but had not been used as described in the specification prior to the filing date of the application. The fact that "a number of techniques or steps may be utilized" does not diminish from the fact that *such techniques or steps are: (a) known in the art; and/or (b) described in the specification.**

(Remarks of 5/29/2007 at 11).

Experimental details for carrying out such a reaction are well known and widely available to the skilled artisan (e.g., in references cited by Inagaki). Numerical values for the "low concentration" are not specified, since such empirical details would be subject to optimization and may differ for each material (or even for various uses of the same material). **The skilled artisan, however, would know how to optimize such reaction conditions using routine procedures; determining the optimal concentration would not require "undue" experimentation.**

...

In general, therefore, **each of the steps required to prepare compositions according to the claims are well known and understood in the art.** Even if the preparation of an optimized composition would require optimization of the reaction conditions

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in one or more of the above- described steps, **the preparation of any composition according to the claims is immediately practicable by the skilled artisan** based on the disclosure of the application

(Remarks of 5/29/2007 at 13).

The Examiner couldn't have said it better. Regrettably, optimization of that which is known does not impart patentability. *See e.g. In re Boesch*, 205 USPQ 215 (CCPA 1980), *Pfizer, Inc. v. Apotex, Inc.*, 82 USPQ2D 1321 (Fed. Cir. 2007).

All other Claim Rejections and Objections of the Non-Final Office Action dated 11/30/2006 are expressly incorporated herein by reference.

Response to Arguments

Claim Construction

Applicant's arguments filed 5/29/2007 have been fully considered but they are not persuasive. The issue is largely academic, as claim terms are given their broadest reasonable interpretation in light of the specification. MPEP 2111. The Examiner is confident the analysis provided in the non-final office action of 11/30/2006 is within the scope and spirit of MPEP 2111 and *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). The claim construction adopted there provides more guidance than Applicants "guidance," which recited that "no particular form of structure is necessarily intended by use of this terminology." (S. 7: [00028]). Claim rejections under 35 U.S.C. §112, ¶2 would have arguably been (and may still be) appropriate.

35 USC 112 - Written Description Rejection

Applicant's arguments filed 5/29/2007 have been fully considered but they are not persuasive. Applicants arguments' presume error on the part of the Examiner by focusing on the lack of a reduction to practice in the non-final office action of 11/30/2006, which is, as Applicants recognize yet fail to underline in their quotation from MPEP 2163, material to the written description analysis. MPEP 2163.02 (quoting *Vas-Cath, Inc. v. Marhurkar*, 935 F.2d 1555, 1563-1564, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991)). Further, Applicants arguments presume the Examiner has not met the burden of proof by focusing only on the total lack of a reduction to practice of Applicants' claimed invention. Assuming *arguendo* that the Examiner "got it totally wrong", a treatment of the law as cited by Applicants is given:

Applicants place emphasis on showing possession of the invention by "showing that the invention was 'ready for patenting,'" and by "describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention." (Remarks of 5/29/2007 at 10) (emphasis in original). Turning first to the "ready for patenting" inquiry: The passage that Applicants cited from MPEP 2163.02 in turn cites to the seminal case of *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 48 USPQ2d 1641 (1998). While generally relating to what conditions trigger the on-sale bar of 35 U.S.C. 102(b), *Pfaff* recites a two-part test for commercial offers for sale. *Pfaff*, 48 USPQ2d at 1646-1647. The second prong of the test relates to the invention "being ready for patenting." *Id.* at 1647. The Court stated, in pertinent part:

That condition may be satisfied in at least two ways: by proof of reduction to practice before the critical date; or by proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to

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enable a person skilled in the art to practice the invention. In this case the second condition of the on-sale bar is satisfied because the drawings Pfaff sent to the manufacturer before the critical date fully disclosed the invention.

Pfaff at ____ (footnote omitted). Again, paying attention to only the law which Applicants regard as being relevant (i.e. *not* the “reduction to practice” element), the inquiry then turns to whether “the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention.” *Id.*

With respect to the drawings presented in the instant application, “Fig. 1” is an “illustrative scheme,” i.e. “one that wasn’t observed in reality.” *See* (S. 4: [00015]) (“illustrative scheme”). “Figs. 2-5” illustrate results generated by computer simulations. *See* (S. 13: [00050]) (“To simulate the performance of the carbon-based compositions for H₂ storage, a multiscale computational strategy was developed in which quantum mechanics (QM) at the X3LYP level of Density Functional Theory (DFT) is utilized to accurately treat van der Waals interactions and to determine an accurate force field (FF).”) *and* (S. 14: [00054]) (“Curves (a) (b) and (c) in FIG. 2A show the *predicted hydrogen storage* for as [*sic*] a function of ILD.”) (emphasis added). Thus, the drawings place one of ordinary skill in the art with computer generated pictures of what the composition of Claim 1 *might* look like. One of ordinary skill in the art is given a picture of graphite and some sort of alkali metal containing compound. From this picture, Applicants urge one of ordinary skill in the art would be able to (with no help from Applicants) carry out the reaction as depicted by Fig. 1. No mention of any solvent, any necessary process conditions, etc were provided in Fig. 1.

Turning to the “other descriptions” provided in the specification, the Examiner would also agree with Applicants that paragraphs [00037] – [00045] are relevant to the written

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description, *see* (Remarks of 5/29/2007 at 11), however the Examiner would characterize the passage as relevant only in showing that Applicants recognized the works of others. *See* (S. 10, [00040]) (“Co-intercalation of the solvated alkali metal containing organic ligands in the carbon material may be accomplished by techniques *known in the art.*”) (emphasis added, citations omitted).

If the preceding alone was not enough to show a lack of possession of the claimed invention, the lack of a reduction to practice, *deemphasized* by Applicants is clearly relevant to the rejection. Applicants stand in a field of doubt, speculation and controversy. For example, the results of R.T.K. Baker and N.M. Rodriguez (cited with approval by Applicants at S. 8: [00033])¹ have been disputed by others in the field. For example, Wang and Johnson utilize similar modeling techniques as Applicants in arriving at the conclusion that “the experimental results are non consistent with any reasonable physisorption model.” Wang, et al., *Computer Simulations of Hydrogen Adsorption of Graphite Nanofibers*, J. Phys. Chem. B 1999; 103(2): 277. It is immaterial whether the simulations run by Wang and coworkers are the same as those performed by Applicants, or whether the graphite nano-fibers are different than the “pillared” material recited by Applicants. While not passing judgment on the veracity of the results reported by Rodriguez, et al., the point of citing to Wang is to illustrate that values recorded in the real world vary from those of computer simulations. Guesses that known chemistry coupled with whatever a computer simulation is told to recite are insufficient for demonstrating possession of the invention.

¹ Applicants reference US 6159538 to Rodriguez, et al. at (S. 8: [00033]) and US 5,653,951 to Rodriguez, et al. at (S. 2: [0006]). This would appear to be the same material recited by Chambers, et al., *Hydrogen Storage in Graphite Nanofibers*, J. Phys. Chem. B 1998; 102(22): 4253, the article discussed by Wang, et al.

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Phrased differently, how did applicants know what values to put into the computer, unless all the parameters are old and known to one of ordinary skill? The fact that the applicants eschewed experimental work in favor of a computer model is not sufficient to arrive at patentable subject matter. Further, the lack of actual examples precludes any argument of unexpected results.

35 USC 112 – Enablement Rejection

Applicant's arguments filed 5/29/2007 have been fully considered but they are not persuasive. In arguing the invention is enabled, *Applicants have admitted the method of making is old and known*, with any optimization necessary well within the skill in the art. The Examiner will take Applicants at their word. However, given lack of direction provided by Applicants – among other factors noted in the non-final action of 11/30/2006 – the Examiner is of the position that the enablement rejection is still proper.

Conclusion

Applicant's response necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

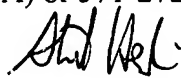
All amendments made in response to this Office Action must be accompanied by a pinpoint citation to the Specification (i.e. page and paragraph or line number) to indicate where Applicants are drawing their support..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel C. McCracken whose telephone number is (571) 272-6537. The examiner can normally be reached on Monday through Friday, 9 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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